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REMARKS

Claims 1-40 were originally presented in the subject continuing application. Claims 1, 17, 33, 36 and 40 were amended in a response dated July 13, 2005. Claims 1, 8, 17, 33, 36 and 40 have herein been amended, and claims 2, 5, 18, 21 and 38 canceled without prejudice, to more particularly point out and distinctly claim the subject invention. No claims have herein been added. Therefore, claims 1, 3, 4, 6, 7, 8, 9-17, 19, 20, 22-37, 39 and 40 remain in this case.

The addition of new matter has been scrupulously avoided. In that regard, support for the common amendment to the independent claims can be found in prior claims 2 and 5. Support for the amendment to claim 8 can be found, for example, in FIG. 11 and the description thereof in the specification.

Applicants respectfully request reconsideration and withdrawal of the grounds of rejection and objection.

35 U.S.C. §103 Rejection

The final Office Action rejected claims 1-3, 6-10, 17-19, 22-26, 33-37, 39 and 40 under 35 U.S.C. §103, as allegedly obvious over Bracho (U.S. Patent No. 5,870,605) in view of Gai et al. (U.S. Patent No. 6,535,491; hereinafter "Gai") and Vaman et al. (U.S. Patent No. 6,011,780; hereinafter "Vaman"). Applicants respectfully, but most strenuously, traverse this rejection as it applies to the amended claims.

Claim 1 recites a method of reconfiguring publish/subscribe systems. The method comprises initiating a reconfiguration of a publish/subscribe system, and reconfiguring the publish/subscribe system. No messages of the publish/subscribe system are lost during the reconfiguring, which is non-disruptive to the publish/subscribe system. The publish/subscribe system also comprises an ordering requirement for delivery of one or more messages from at least one node to at least one other node of the publish/subscribe system, and the reconfiguring preserves the ordering of delivery of the one or more messages.

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With regard o the aspect of claim 1 that no messages of the publish/subscribe system are lost during the reconfiguration, the Office Action alleges at page 5, lines 1-2 that Gai teaches "…some messages are not lost during reconfiguration[.]" Even assuming for the sake of argument that the allegation is true, Applicants submit that claim 1 recites no messages being lost during reconfiguring, not just some messages. The Office Action also alleges that Vaman teaches reconfiguration where no messages are lost. However, what Vaman actually emphasizes is that service not be disrupted. Applicants submit that service not being disrupted and message loss are not necessarily the same thing; in short, depending on what one means by "service," it could indeed continue even though some messages are lost.

The amended claim 1 aspect of the reconfiguring being non-disruptive to the publish/subscribe system originated in claim 2, canceled herein. The Office Action, in response to the Appeal Brief, indicated that the argument regarding claim 2 was persuasive. However, the Office Action alleged a new rejection of claim 2. Applicants carefully reviewed the Office Action, but could find no other mention of claim 2. Moreover, the alleged new rejection involves the same references previously used to reject claim 2. Therefore, Applicants submit they have not been adequately apprised of the rejection of this subject matter.

Nonetheless, Applicants submit that amended claim 1 is not obvious over the cited art for the same reasons that claim 2 was not obvious thereover. More specifically, Gai et al. merely describes commands that reduce the age value used by switches in the network, resulting in a reduction in the time to detect a change. Applicants submit the cited section, and Gai et al. in general, fails to teach or suggest reconfiguring that is non-disruptive to a publish/subscribe system. This is true for several reasons.

First, Applicants submit that "non-disruptive" at a minimum implies the absence of disruption, as distinguished from a reduced disruption, where disruption is still present. Gai et al. does not teach eliminating the time to detect a change, but rather, reducing it. Thus, Applicants submit reducing the change-detection time cannot logically read on "non-

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disruptive." Second Gai et al. never mentions publish/subscribe systems, which are a
particular type of network utilizing multicast messaging (see the Background section of the
present application). Third, Applicants submit that one skilled in the art would not
understand "non-disruptive" in the context of a publish/subscribe system to mean reducing
change-detection time, but rather, not having to shut down publishers or subscribers during a
reconfiguration.

Against the claim 1 aspect that delivery ordering is preserved by the reconfiguring,
the Office Action cites to Shaffer. The Appeal Brief argued that Shaffer was improperly
cited as nonanalogous art, and went through the steps required by the case law. In response
to that argument, the Office Action merely presented a conclusion that "Shaffer provides an
analogous communications system that provides real-time data in sequential order after a
reconfiguration." See the Office Action at page 3, number section 2. In particular, the Office
Action failed to address the crucial second step of the nonanalogous art test, namely, if the
reference is not within the applicant's particular field of endeavor, whether the reference is
reasonably pertinent to the particular problem the inventor sought to solve. See *Heidelberger
Druckmaschinen AC v. Hantscho Commercial Products Inc.*, 30 U.S.P.Q.2d 1377, 1379
(Fed. Cir. 1994); *In re Wood*, 599 F.2d 1032, 202 U.S.P.Q. 171, 174 (CCPA 1979).

The problem of the present invention is set out in numbered paragraphs 0010 and
0011 as how to handle changes of topology (reconfiguration) in a publish/subscribe system.

Applicants submit that Shaffer is not reasonably pertinent to the problem sought to be
solved by the present invention. A reordering scheme for a point-to-point system (Shaffer)
simply would not work after a reconfiguration in a publish/subscribe system. A publish/
subscribe system differs from the point-to-point environment of Shaffer in at least two ways:
(1) each published message may be sent to multiple subscribers, possibly a large number; and
(2) each subscriber will receive a different subset of the stream, based upon the details of his
subscription – e.g., a first subscriber might receive messages 2, 5, 7, and 9, while a second
receives 4, 7, 8, and 10. A subscriber receiving message 10 without message 9 will not know
whether message 9 was not received because it does not satisfy the subscription, or whether

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message 9 did satisfy the subscription, but was delayed because of taking a different path.
The technical expression for the above is that the sequence number set for the received
messages is "sparse" and not "dense". Therefore, delaying processing message 10 until
message 9 arrives will not work, since message 9 may never arrive at a given subscriber.
Requesting retransmission, as cited in Shaffer col. 5, lines 56-67, for non-real-time data, will
not work, since thousands of subscribers may flood the network with retransmission requests
for a single publisher. Changing delay times, as discussed in Shaffer col. 6, lines 8-10, will
not work because messages travel to multiple subscribers, not to a single subscriber, over a
variety of paths exhibiting a variety and unpredictable number of delays. However useful
Shaffer's invention may be for point-to-point packet telephony, the teachings regarding
preserving message ordering do not carry over to the completely different environment of the
present invention, namely a publish/subscribe system in the face of reconfigurations.

         Thus, Applicants submit that Shaffer is not reasonably pertinent to the problem
sought to be solved, which problem has to do with publish/subscribe systems and not point-
to-point systems as in Shaffer. Therefore, Applicants submit that Shaffer is non-analogous
art.

         For the same reasons that Shaffer is not reasonably pertinent, Applicants submit it
also does not make claim 1 obvious, either alone or in combination with the other multiple
references cited.

         Therefore, for all the reasons noted above, Applicants submit that claim 1 cannot be
made obvious over Bracho in view of Gai et al. and Vaman et al., and in further view of
Moscowitz and Shaffer.

         Independent claims 17, 33, 36 and 40 contain limitations similar to those argued
above with respect to claim 1. Thus, the arguments made with respect to claim 1 apply
equally to those claims. Therefore, claims 17, 33, 36 and 40 also cannot be made obvious
over the cited references.

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Applicants submit that the dependent claims are allowable for the same reasons as the independent claims from which they directly or ultimately depend, as well as for their additional limitations.

For example amended claim 8 recites forwarding a message from at least one node of the publish/subscribe system to at least one other node of the publish/subscribe system, after the reconfiguration is initiated and prior to completion of the reconfiguration.

Against claim 8, the Office Action cites to Gai. However, Gai at column 12, line 35, teaches forwarding after the reconfiguration is complete. In contrast, claim 8 has been amended to recite that forwarding the message is done after the reconfiguration is initiated and before it is completed.

Therefore, Applicants submit that claim 8 cannot be made obvious over Bracho in view of Gai and Varian.

As another example, claim 9 recites determining whether an old routing path or a new routing path is to be used in forwarding the message.

Against claim 9, the Office Action at numbered paragraph 4 on page 3 alleges that Gai determines a new routing path after a failure. However, Applicants submit there is no "determining" in Gai, in the sense of a decision. When the old path fails, the new one is used. In contrast, claim 9 recites determining *whether* an old routing path or a new one is to be used to forward the message. Gai cannot, for example, determine to use the old path, since it has failed; only the new path can be used. Thus, there is no decision in Gai.

Therefore, Applicants submit that claim 9 cannot be made obvious over Bracho in view of Gai and Varian.

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Objection to Claims

The Office Action objected to claims 13, 15, 16, 29, 31 and 32 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitation of the base claim and any intervening claims.

While Applicants sincerely appreciate the indication of allowable subject matter, in light of the above remarks, Applicants respectfully decline at this time to so amend the noted claims. However, Applicants expressly retain the right to so amend the claims subsequently in prosecution if later deemed appropriate in light of the situation.
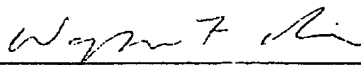
CONCLUSION

Applicants submit that the dependent claims not specifically addressed herein are allowable for the same reasons as the independent claims from which they directly or ultimately depend, as well as for their additional limitations.

For all the above reasons, Applicants maintain that the claims of the subject application define patentable subject matter and earnestly request allowance of claims 1, 3, 4, 6, 7, 8, 9-17, 19, 20, 22-37, 39 and 40.

If a telephone conference would be of assistance in advancing prosecution of the subject application, Applicants' undersigned attorney invites the Examiner to telephone him at the number provided.

Respectfully submitted,

Wayne F. Reinke
Attorney for Applicants
Registration No.: 35,650

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HESLIN ROTHENBERG FARLEY & MESITI P.C.
5 Columbia Circle
Albany, New York 12203-5160
Telephone: (518) 452-5600
Facsimile: (518) 452-5579